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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,466	06/12/2001	Jerry A. Pickering	10013	4348

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EXAMINER

HU, HENRY S

ART UNIT

PAPER NUMBER

1713

DATE MAILED: 01/02/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/879,466

Applicant(s)

PICKERING ET AL.

Examiner

Henry S. Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 1-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 16-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-29 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6-21-2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. It is noted that USPTO has received a pre-amendment on specification regarding paragraphs 027, 053, 067, 092, 0145 and 0150 as paper No. 3 filed on August 28, 2002 under CFR 1.121(C).

Applicant's election with traverse of Claims 16-29 in Paper No. 5 filed on November 4, 2002 is acknowledged. The traversal is on the ground(s) that the non-elected group, Claims 1-15 contains a single independent claim, and is drawn to a technology apparently requiring search of a single class/subclass area. This is not found persuasive because even the group I of Claims 1-15 contains an article comprising the composition of group I, It may be on any surface with any shape or thickness, additionally it may contains materially different components to become other products. Therefore the examiner maintains the restriction.

The requirement is still deemed proper and is therefore made **FINAL**.

This application contains claims 1-15 drawn to an invention nonelected with traverse in Paper No. 5. A complete reply to the final rejection must include **cancellation of nonelected claims** or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Specification

2. The disclosure is objected to because of the following informalities:

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(a) On page 14, paragraph 0063 at line 3, recitation “N,N,N, trimethylammonium” should be changed to “N,N,N-trimethylammonium”.

(b) On page 53, line 8, recitation “ ω -trimethyl terminated” is wrong, it should be changed to “ ω -trimethylXXXX terminated”, wherein XXXX is such as silyl or other moiety.

Appropriate corrections for (a) and (b) are required.

Drawings

3. INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the “Notice of Allowability.” Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

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Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.185(a). Failure to take corrective action within the set (or extended) period will result in **ABANDONMENT** of the application.

A notice of draftsman's patent drawing review (Form 948) is attached; please make corrections on item 5 regarding margins and on item 10 regarding character of lines, numbers and letters.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 24, at line 15, Claim 25 at line 8 and Claim 26 at line 13, the phrases "**at least essentially absent from**" render the claim **indefinite** because it is **unclear** whether the limitation(s) following the phrase are part of the claimed invention. The use of the phrases "**at least essentially absent from**" to link a broad range of values with a narrow range of value renders the claim to be indefinite. It is not clear which

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range controls the actual metes and bounds of the claimed subject matter. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. *The limitation of parent Claim 16 of the present invention relates to a composition comprising (A) at least one fluoroelastomer, and (B) amorphous silica surface treated with at least one organoaminosilane. See other limitations of Claims 17-29.*

7. Claims 16-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henry et al. (US 5,531,813) in view of Winnik et al. (US 5,102,763) and Miyazaki et al. (US 5,895,713).

Regarding the limitation of parent Claim 16, Henry et al. disclose a composition comprising a fusing system with monoamino-functional silicon release agent and a fluoroelastomer (column 7, line 22 – column 8, line 15) such as Viton GF (abstract, line 1-7; column 8, line 16-18 and 54-64).

The reference is silent about using amorphous silica surface treated with organoaminosilane. Winnik et al. teach a surface-organo-modified silica can be prepared by reaction of silica with aminoalkylsilane such as aminopropyltriethoxysilane (column 5 line 35 – column 6, line 44), the advantage is such a modified silica particle included in a resin composition will be well dispersed with minimal or no particle agglomeration (column 4, line 30-35). Additionally, Miyazaki et al. teach a surface-organo-modification of an outdoor article can be done with **hexamethylsilazane** (column 10, line 8) or a silane coupling agent containing amino group such as γ -aminopropyltriethoxysilane (column 9, line 35-42; column 10, line 27-34). It is noted that hydroxyl functionality naturally exists on the surface of silica and outdoor article, therefore Miyazaki's agents used for modification on outdoor article can be applied to Winnik's silica. In light of the teaching from both Winnik and Miyazaki, it would be obvious for one having ordinary skill in the art to modify Henry's composition by replacing monoamino-functional silicon release agent with surface-organoamino-modified silica, which is pretreated with hexamethylsilazane or an aminosilane coupling agent such as γ -aminopropyltriethoxysilane. Such obtained organoamino-modified silica including in

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Henry's fluororesin composition will be well dispersed in the resin with minimal or no particle agglomeration.

Regarding Claim 17, Miyazaki et al. teach various compound such as metal alkoxide can be used (column 10, line 40-55). Therefore, Claim 17-18 and 20 are rejected with the above discussion for Claim 16.

8. Claims 19 and 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henry et al. (US 5,531,813) in view of Winnik et al. (US 5,102,763) and Miyazaki et al. (US 5,895,713) as applied to Claims 16-18, and further in view of Ito et al. (US 4,758,618) and Tonelli et al. (US 6,350,306).

Regarding Claims 19 and 21-23, the discussion of the disclosures of the prior art of Henry et al. for Claims 16-18 of this office action is incorporated here by reference. Regarding Claims 19 and 21-29, the reference is silent about (A) using a solvent, and (B) the curative is a **bisphenol** curing system. Tonelli et al. teach a solvent can be used together with a crosslinking agent in a coating based on fluoropolymer with advantage to have the functional groups homogeneously crosslinked due to a better mobility in fluid state (column 17, line 40-41; column 18, line 59-65). Ito et al. teach **the polyhydroxy curing system comprising the bisphenol crosslinking agent, the organo-onium compound as vulcanization accelerator and a metal oxide or hydroxide as a cocurative** (column 3, line 32-35; column 7, line 12 – column 8, line 42; see claims 1, 11

and 13). The advantage is such a composition becomes curable to have better performance properties due to crosslinking.

In light of the teaching from both Tonelli and Ito, it would be obvious for one having ordinary skill in the art to further modify Henry's fluorinated composition by using a solvent with a polyhydroxy crosslinking system including the bisphenol crosslinking agent, the organo-onium compound as vulcanization accelerator and a metal oxide or hydroxide as a cocurative. With advantages as such a modified fluorinated composition will be curable in the process, and also result a homogeneously crosslinking due to a better mobility in fluid state, thereby obtain better performance properties.

9. Claims 24-28 are thereby rejected with the above discussion for Claims 16-23 since the process has been taught by the above mentioned references.

Regarding Claim 29, Henry et al. disclose in the amino-functional release agent, it is difficult to limit all the chains to a P of 1 and therefore the small range of $p=1-5$ is specified (column 6, line 18-18; column 5, line 46-67). Thereby Henry's agent sets forth the claimed limitation.

10. Claims 16-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hecks et al. (US 6,485,835) or Kaplan et al. (US 6,261,688), with each in view of Winnik et al. (US 5,102,763) and Miyazaki et al. (US 5,895,713).

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Regarding the limitation of parent Claim 16, Hecks et al. disclose a composition comprising a fusing system with a primary- or secondary-amino-functionalized polyorganosiloxane release agent and a fluoroelastomer such as Viton GF (abstract, line 1-3; column 12, line 1 – column 13, line 30). Kaplan et al. disclose a composition comprising a fusing system with a tertiary-amino-functionalized polyorganosiloxane release agent and a fluoroelastomer such as Viton GF (abstract, line 1-5; column 12, line 31 – column 13, line 60).

Both Hecks and Kaplan are silent about using amorphous silica surface treated with organoaminosilane. Winnik et al. teach a surface-organo-modified silica can be prepared by reaction of silica with aminoalkylsilane such as aminopropyltriethoxysilane (column 5 line 35 – column 6, line 44), the advantage is such a modified silica particle included in a resin composition will be well dispersed with minimal or no particle agglomeration (column 4, line 30-35). Additionally, Miyazaki et al. teach a surface-organo-modification of an outdoor article can be done with **hexamethylsilazane** (column 10, line 8) or a silane coupling agent containing amino group such as γ -aminopropyltriethoxysilane (column 9, line 35-42; column 10, line 27-34). It is noted that hydroxyl functionality naturally exists on the surface of silica and outdoor article, therefore Miyazaki's agents used for modification on outdoor article can be applied to Winnik's silica. In light of the teaching from both Winnik and Miyazaki, it would be obvious for one having ordinary skill in the art to modify Hecks or Kaplan's composition by replacing monoamino-functional silicon release agent with surface-organo-modified silica, which is pretreated with hexamethylsilazane or an amino-silane coupling agent

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such as γ -aminopropyl-triethoxysilane. Such obtained organoamino-modified silica including in Hecks or Kaplan's fluoro-resin composition will be well dispersed in the resin with minimal or no particle agglomeration.

Regarding Claim 17, Miyazaki et al. teach various compound such as metal alkoxide can be used (column 10, line 40-55). Therefore, Claim 17-18 and 20 are rejected with the above discussion for Claim 16.

11. Claims 19 and 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hecks et al. (US 6,485,835) or Kaplan et al. (US 6,261,688), with each in view of Winnik et al. (US 5,102,763) and Miyazaki et al. (US 5,895,713) as applied to Claims 16-18, and further in view of Ito et al. (US 4,758,618) and Tonelli et al. (US 6,350,306).

Regarding Claims 19 and 21-23, the discussion of the disclosures of the prior art of Hecks et al. or Kaplan et al. for Claims 16-18 of this office action is incorporated here by reference. Regarding Claims 19 and 21-29, the reference is silent about (A) using a solvent, and (B) the curative is a **bisphenol** curing system. Tonelli et al. teach a solvent can be used together with a crosslinking agent in a coating based on fluoropolymer with advantage to have the functional groups homogeneously crosslinked due to a better mobility in fluid state (column 17, line 40-41; column 18, line 59-65). Ito et al. teach **the polyhydroxy curing system comprising the bisphenol crosslinking agent, the organonium compound as vulcanization accelerator and a metal oxide or hydroxide as a cocurative** (column 3, line 32-35; column 7, line 12 – column 8, line 42; see claims 1, 11

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and 13). The advantage is such a composition becomes curable to have better performance properties due to crosslinking.

In light of the teaching from both Tonelli and Ito, it would be obvious for one having ordinary skill in the art to further modify Hecks or Kaplan's fluorinated composition by using a solvent with a polyhydroxy crosslinking system including the bisphenol crosslinking agent, the organo-onium compound as vulcanization accelerator and a metal oxide or hydroxide as a cocurative. With advantages as such a modified fluorinated composition will be curable in the process, and also result a homogeneously crosslinking due to a better mobility in fluid state, thereby obtain better performance properties.

12. Claims 24-28 are thereby rejected with the above discussion for Claims 16-23 since the process has been taught by the above mentioned references.

Regarding Claim 29, Hecks et al. or Kaplan et al. disclose in the amino-functional release agent it is difficult to limit all the chains to be the same P, therefore some may have 1-5 or more amino-functional groups (column 18, line 46-50 for Kaplan; column 19, line 23-24 for Hecks). Thereby Hecks et al. or Kaplan's agent sets forth the claimed limitation.

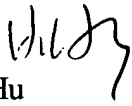
Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to a composition comprising a fluoroelastomer and an amorphous silica surface treated with an organoaminosilane:

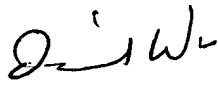
US Patent No. 6,159,588 to Eddy et al. disclose a fuser member with fluoropolymer, silicon and alumina composite layer. However, Eddy et al. fail to teach using a surface-organo-modified silica.

US Patent No. 5,824,416 to Chen et al. disclose a fuser member having fluoroelastomer layer. However, Chen et al. fail to teach using a surface-organo-modified silica.

14. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Henry S. Hu whose telephone number is (703) 305-4918. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (703) 308-2450. The fax number for the organization where this application or proceeding is assigned is (703) 746-9051. Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 308-0661.


Henry S. Hu

December 26, 2002


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